GEOMETRID NOTES AND NEW SPECIES

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RACHEOSPILA TENUIMARGO Warren

This pretty little species, described Nov. Zool. XII, 319, 1905, is fairly common on the east coast of Mexico, and extends south as far as Guiana. Two specimens taken by Mrs. Leslie Forsythe at Florida City, south of Miami, Florida, are in my collection. This should be of interest to those who like a record of strays from other lands.

Stamnoctensis vernon Guedet, n. sp.

Primaries pointed at apex, light ochreous, irrorate with reddish brown, especially along the costa and outer margin. Costa marked with three dark brown spots. The basal area dark, especially along the costa. First spot one-fourth from the base of the wing, outwardly oblique. Second about the middle of the costa and heavier and broader than the first, preceded by an indefinite, broad, light, median shade, which crosses the costa at right angles and is lost in the ground color. The third spot about three-quarters out from the base of the wing, marking the beginning of brownish subterminal line. Subterminal line angled inwardly on the subcostal vein, running thence outwardly and obliquely to vein V, where it is sharply angled, and curving slightly inwardly, attains the inner margin about two-thirds out from the base of the wing. This line is followed by a light ochreous band. A horizontal dash extends from this band toward the apex, where it separates into two branches. In the subterminal area the veins are free of the darker irrorations. Fringe checkered with reddish brown.

Secondaries light ochreous, with the markings of the underside showing through.

Primaries beneath marked much as above. The horizontal dash in the subapical region showing more prominently on account of the darker background. Secondaries beneath light ochreous, with a reddish brown dash which is outwardly oblique at the center of the costa. Median vein distinctly marked with reddish brown, with a series of horizontal striations of reddish brown across the median area.

The distinctive feature of this species is a heavy reddish brown line which begins in the center of the subterminal area and runs with a slight outward curve toward the center of the inner margin without reaching it. There is a lighter reddish brown shade between this line and the outer margin.

I propose for this species the name *vernon* after the type locality.

Holotype, male, (No. 4779), Vernon, Apache County, Arizona, July, 1936, and allotype, female (No. 4780), same data, both in the collection of the California Academy of Sciences, San Francisco, California. Paratypes, two males and one female, same data, in my collection; one male, same data, in collection of the United States National Museum, Washington, D. C., one male, Jemez Springs, New Mexico, June; one male, Jemez Springs, no date; one male, Bent, New Mexico, no date; two males, "New Mexico," April 1, 8, all in my collection.

Philedia punctomacularia connecta Guedet, n. var.

Philedia punctomacularia Hulst was described (Ent. Amer. Vol. III, page 214, 1888) from two males and two females taken in California and Vancouver Island, B. C. The male type is pictured in Holland's Moth Book, plate 43, fig. 59. Dr. Harrison Dyar (Proc. U. S. Natl. Mus. Vol. XVII, page 909, 1904) tells us on the authority of Mr. Theodore Bryant that the food plant is the common brake (*Pteris*). In the British Columbia Check List (1927) it is listed as inhabiting Southern Vancouver Island, Lower Frazer Valley and Kaslo.

On the primaries of the typical form, the ante-median line is "marked by a short black streak on each vein" and there is a post-median "row of black points on the veins nearly parallel with the outer margin." The secondaries have this post-median row of black points.

A series of nine specimens from Carmel, California, have these points connected so as to form diffuse bands. The ante-median band of the primaries is light brown, broad, diffuse, shading outwardly toward the center of the wing. The discal spot is also light brown and diffuse. The post-median band on both wings is broad, light brown, with the veins faintly marked with minute, black points. The ground color is light brown, rather than the typical blue gray. For this variety, which is without a name, though present in many collections, I propose the name **connecta**.

Holotype, male (No. 4781), Carmel, Nov. 5, 1925 (L. S. Slevin), allotype, female (No. 4782), Carmel, Dec. 25, 1933 (L. S. Slevin), both in the collection of the California Academy

of Sciences. Paratypes, male and female, same data, in my collection, and in the collections of the California Academy of Sciences and in the U. S. Natl. Mus., Washington, D. C.

Phengommatæa olifata Guedet, n. sp.

Expanse 35 mm. Head, antennæ, thorax and abdomen light ochre-yellow. Primaries light ochre-yellow, crossed by a darker yellow band. Basal area lightly shaded with brown. Inner edge of the median band with a dark brown line, beginning on the costa half way out, sweeping sharply outward around a diffuse, linear, discal spot, then curving inward and going with a very slight wave to inner margin about one-fifth from base. Inner side of this line without the brownish shading of the basal area. Exteriorly this line is heavily shaded with brown. A similar dark brown line marks the outer edge of the median band. This line, beginning on the costa 3 mm. from the apex, is slightly and evenly sinuate and reaches the inner margin about 5 mm. from the anal angle; it is bordered inwardly by a brownish shading and outwardly by an even band of the ochre-yellow ground color; between these two lines the wing is dark brownish yellow. Subterminal area shaded with a dark ochre color, but not so dark as the median area; median veins slightly shaded with brown.

Secondaries light yellow, their only maculation being a sinuate post-median dark brown line, accented by dots on the veins. Subterminal and terminal areas slightly darker.

Primaries beneath light yellow with a diffuse, brownish cloud running from the base almost to the discal area in the upper half of the wing; discal spot linear, a trifle less diffuse than above; the dark yellow median band being very faintly reflected. Secondaries also light yellow, their only maculation being a row of dots on the veins in the subterminal area parallel to the outer margin. This row of spots does not correspond with the post-median line on the upper side of the secondaries.

It gives me great pleasure to propose for this beautiful species the name *olifata*, in honor of Reverend J. A. McAuliffe, of San Francisco, through whose kindness and encouragement I became interested in the study of *Lepidoptera*.

Holotype, male, No. 4783, Turkey Flat, Chiricahua Mountains, Cochise County, Arizona, 9000 feet, July 22, 1927 (J. A. Kusche), allotype, female, No. 4784, same data, both in the collection of the California Academy of Sciences. Six paratypes, male and female, same data, in my collection and in the collection of the U. S. Natl. Mus., Washington, D. C. and six paratypes, male and female, Fly's Peak, Chiricahua

Mountains, Cochise County, Arizona, 9800 feet, July 10-30, 1927, in the collection of the California Academy of Sciences, San Francisco.

Caripeta piniata suffusata Guedet, n. var.

Packard described *piniata* in the genus *Parennomos* (New and Little Known Insects, Rept. Mass. Ag. page 247, 1870), but in his Monograph, page 238, 1876, he sinks this as a synonym of *Caripeta angustiorata* Walker. Strecker described his *seductaria* in the genus *Caripeta* (Lep. Rhop. Het. Suppl. II, page 9, 1899). It is a synonym of *piniata* Pack. Holland published a figure in his Moth Book, Pl. 44, fig. 2, which he called *Caripeta angustiorata* Walker. This was an error, as was pointed out by Taylor (Can. Ent. Vol. 36, p. 245). *Angustiorata* Walker is the species figured by Packard in his Monograph, Plate 9, figure 52. Holland's figure is a representation of *piniata* Pack. (*seductaria* Strecker) which is a good species, as noted by Taylor, l.c., and by Barnes and McDunnough (Cont. Lep. N.A., Vol. II, page 209, 1914).

In the typical form the primaries are "deep ochreous and paler at the base." Five specimens taken by Mr. J. A. Kusche, in the Chiricahua Mountains, Cochise County, Arizona, July, 1927, have much darker ochreous primaries; the strigations of the typical form are present; there is a distinct, whitish, evenly curved basal line; the antemedian area is the same shade as the median area, and the white line which, in the typical form, marks the boundary of the basal area, is barely indicated by two splashes of white in these specimens. The silvery, post-median line is radically different. In the typical form, "it curves inward just below the median vein, and again slightly opposite the discal spot." In these specimens this line is angled outwardly on the subcostal vein, running thence almost straight to the inner margin. Secondaries sparsely covered with darker irrorations, a trifle heavier outwardly; dark discal spots distinct. Smoky post-median line broad, broken and sinuate. Primaries beneath are much as in the typical form. Secondaries with a linear dark-brown discal spot; post-median line broad, heavy and dark brown but not reaching the inner margin. I propose for this variety the name *suffusata*.

Holotype, male, No. 4785, Rustler Park, Chiricahua Mountains, Cochise County, Arizona, 9000 feet, July 15, 1927; allotype, female, No. 4786, Fly's Peak, Chiricahua Mountains,

Cochise County, Arizona, 9-9800 feet, July 30, 1927. Paratypes, one male, Turkey Flat, Chiricahua Mountains, Cochise County, Arizona, 9000 feet, July 22, 1927, and one male and one female, Fly's Peak, Chiricahua Mountains, Cochise County, Arizona, 9-9800 feet, July 30, 1927, all in the collection of the California Academy of Sciences, San Francisco.

Semiothisa kuschea Guedet, n. sp.

Expands 33 mm. Palpi moderate, rough-scaled. Antennæ of both sexes simple. Head white. Thorax creamy white, scaled. Abdomen tufted at end, creamy white.

Primaries glistening, creamy white, crossed by four clay-brown bands; the first, 1 mm. wide, runs obliquely from the discal, sometimes with a slight curve, to the inner margin which it reaches about 2 mm. from the base; discal dot very minute, black; postmedian line about 1 mm. wide, running from the costa, about 2 mm. from the apex, with a slight in-curve to the inner margin three-fifths out from the base; subterminal line beginning slenderly at apex, widening rapidly to about 1 mm., then running almost straight to the inner margin near the anal angle. A thin but very distinct line of the ground color separates this line from the marginal line. Fringe creamy.

Secondaries of a lighter cream-color, with a small black discal dot and sometimes with traces of a subterminal line showing on the lower half of the wing. Fringe as on primaries.

Primaries beneath much as above; costa a bit more yellowish and the subcostal area slightly irrorate with brown from the base to beyond the discal line; lines of the upper surface distinctly reproduced; discal dot somewhat obscure. Secondaries much as above. The discal dot sharp, contrasting.

Holotype, male, No. 4787, Fly's Peak, Chiricahua Mountains, Cochise County, Arizona, July 18, 1927 (J. A. Kusche); allotype, female, No. 4788, Turkey Flat, Chiricahua Mountains, Cochise County, Arizona, 8-9000 feet, July 22, 1927 (J. A. Kusche). Paratypes, three males, Fly's Peak, July 18; Turkey Flat, July 22; Bar Foot Park, July 20; all in the Chiricahua Mountains, Cochise County, Arizona (J. A. Kusche, collector), and all in the collection of the California Academy of Sciences, San Francisco. Also two males, Fly's Peak, July 30, 1927, and July 29, 1927, Chiricahua Mountains, Cochise County, Arizona, in the collection of the author.

Superficially this appears to be a large *Euaspilates spinataria* Packard (Sixth Rep. Peab. Acad. Sci., page 45, 1874 and Geometrid Moths of N. A., page 204, 1876), but the male antennæ are simple, the dark lines of the primaries heavier, and, on close comparison, it proves to be altogether different. It is possible that this species is referred to by Strecker (Surv. Dept. Mo., Ruffner, 1878, Appendix, page 1863), where he speaks of two examples (of *spinataria* Pack.) both of which had "the dark lines of the primaries much heavier than represented in Packard's figure." It is difficult to believe that so good an entomologist as Strecker would have passed over the difference in the antennæ. I am convinced that the present species has nothing in common with *spinataria* Pack.

I propose for this species the name *kuschea* after the collector.

Vinemina perdita Guedet, n. sp.

Expands 37 mm. Palpi moderate, upturned, fuscous. Antennæ bipectinate in male with simple apex; pectinations long, arising from base of the segments, simple in the female. A large fovea at base of the primaries. Front fuscous clay color. Thorax gray, irrorate with black. Abdomen fuscous, ringed with white.

Primaries creamy white, heavily irrorate with black. Costa marked with eight spots which are the beginnings of as many irregular lines. First line very close to the base and sharply toothed outwardly in the subcostal area, disappearing before reaching the inner margin. Ante-median area with two almost equidistant subparallel lines, the second of which is heavier than the first and widens below the costa and at the inner margin; these cross the wing in three uneven scallops with the points directed inwardly. Median line heavy, crossing the wing in three scallops with the points directed outwardly. Space between the ante-median and the median lines less heavily irrorate with black in some specimens, giving this portion of the wing a slightly lighter appearance. Wing beyond the median line shaded with heavier irrorations which cloud the discal spot in some specimens. Post-median line composed of many small zigzag dashes; not parallel with the outer margin but approaching the median line on vein 1b, then sharply diverging to the inner margin. Subterminal line sinuate, composed of disconnected black spots. A dark shade opposite the discal area runs almost to the outer margin and is cut by a faint line of the ground color which fol-

lows the sinuate, subterminal line. Marginal line composed of triangular black spots on the veins. Fringe checkered white and brown.

Secondaries creamy white, evenly irrorate with brown, the discal spot brown. The only other maculation is a subterminal line of diffuse brown spots, parallel to the outer margin, and a marginal row of blackish spots more or less connected.

Primaries beneath suffused with dark brown, giving them the color of the secondaries above; maculation of the upper surface faintly reflected. Secondaries much as above.

Holotype, male, No. 4796, Fly's Peak, Chiricahua Mountains, Cochise County, Arizona, 8-9000 feet, July 30, 1927 (J. A. Kusche); allotype, female, No. 4797, Chiricahua Mountains, Cochise County, Arizona, 8500 feet, August 6, 1927 (J. A. Kusche). Paratypes, 10 males and 3 females, Bar Foot Park, Fly's Peak and Turkey Flat, all in the Chiricahua Mountains, Cochise County, Arizona, July 27 to August 2, 1927, in the collection of the California Academy of Sciences, San Francisco. Also two males and two females, Fly's Peak and Turkey Flat, July 3 to August 6, Chiricahua Mountains, Cochise County, Arizona, in author's collection, and two specimens sent from the same series three years ago to J. McDunnough and now in the Canadian National Museum at Ottawa, Canada.

I am indebted to Mr. J. McDunnough for the generic reference.

History of Beekeeping

History of American Beekeeping, by Frank C. Pellett, First edition. 213 pages, illustrated. 1938. Collegiate Press, Inc., Ames, Iowa. Cloth bound, $2.50.

In the pages of this book the author has traced in an interesting manner the important events in the early history of American beekeeping, from the time of the first importations of bees into this country until well into the present decade. The development of beekeeping in America has very closely paralleled the improvements, inventions of equipments and the perfection of their use in relation to bee behavior. The dates and men connected with these historical events are gathered together in a manner that will delight the student or teacher of the American system of beekeeping. Two chapters are devoted to American periodicals and books on beekeeping and another on beekeeping societies and conventions.—J. E. Eckert, Davis, Calif.